



Seed Certification- An Important Process to Maintain Seed Quality

Surbhi and Axay Bhuker

Chaudhary Charan Singh
Haryana Agricultural University,
Hisar-125004



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*Corresponding Author

Surbhi*

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INTRODUCTION

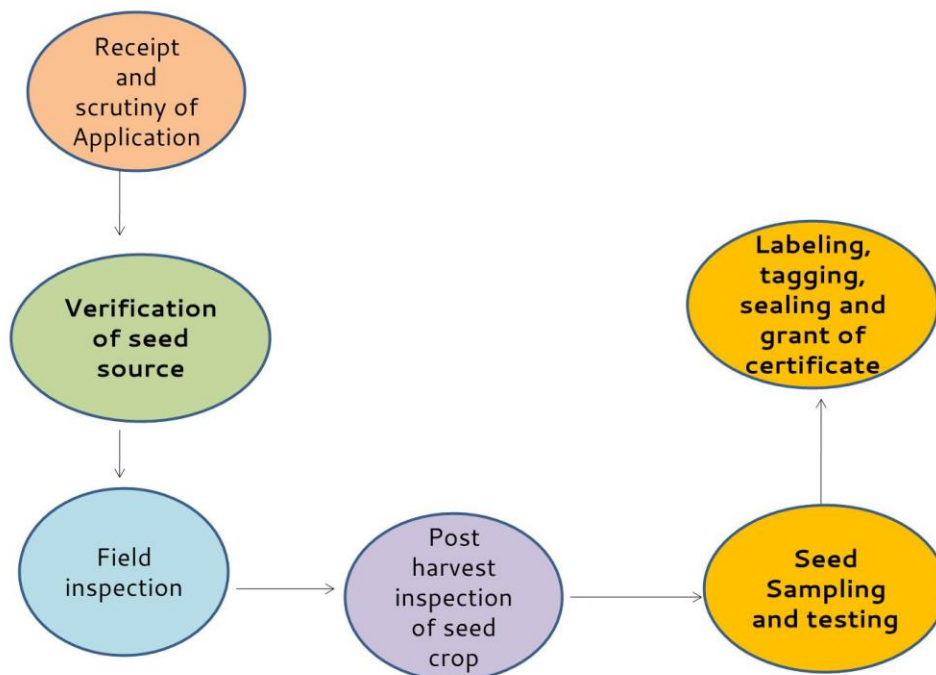
Seed certification is a legal, scientifically designed and systemic procedure to maintain, multiply and make available quality seed to the farmers. Identification of superior varieties and their systemic multiplication by careful maintenance are other objectives of seed certification. In most of the countries including India, seed certification is voluntary. We can produce the certified seed of notified varieties only. Most of the varieties/hybrids in vegetable crops are not notified, hence certified seed of such varieties can't be produced. In case variety is not notified, truthfully labeled seed (TL seed) is an alternate. Seed certification agency supervise the quality of seed of two classes *i.e.* foundation and certified class. Certified seed is costlier than TFL seed because certification charges are included in certified seed. Large quantity of seed sold in the market is as truthfully labeled seed. Under section 8 of seed act, 1966, there is a provision to establish state seed certification agency which will be responsible for seed certification in that particular state. As per this provision, Maharashtra established first state seed certification agency in 1970 but it was not an autonomous body. First of all Karnataka established state seed certification agency in 1974 as an autonomous body. Presently, 25 state seed certification agencies are working all over the country. Haryana has established Haryana State Seed Certification Agency (HSSCA) in the year 1976. The head office of HSSCA is situated at Panchkula and four regional offices are at Karnal, Hisar, Sirsa and Rohtak. Seed certification agency certifies the seed on the basis of Indian Minimum Seed Certification Standards (IMSCS).

While establishing seed certification agency following principles should be followed:

- The agency should not involve in seed production and marketing of seeds.
- It should be an autonomy body.
- Seed certification agency should adopt uniform standards and procedure.
- The agency should be in close contact with technical institute like state agriculture university or ICAR institutes.
- Being an autonomous body, the agency has to generate its source of income but It will work on no-profit no loss basis.
- It should have trained adequate technical staff for proper seed certification process.
- There should be adequate facilities for timely inspections.
- It should serve the interests of seed producers and buyers.

Procedure of seed certification: Seed certification process completes in following six phases:

1. **Receipt and scrutiny of Application:** Any seed producer, who wants to produce certified seed, have submit the application form along with proper fee to the concerned office of Assistant Director of Seed Certification 10 days before starting the season. Separate sowing reports are required for different crop varieties, classes, and different stages. The application then will be scrutinized by the agency and after giving the number to that application, it will be marked to concerned seed certification officer. Along with application and required fees, other documents are also required such as list of seed growers, seed sale license, firm registration, registration of processing plant.



Procedure of seed certification

2. Verification of seed source: Seed certification agency supervised the quality of foundation and certified seed. For foundation seed production, breeder seed is required and for production of certified seed, foundation

seed is required. For quality seed production, the class should be appropriate and source should be authentic. Class as well as source of seed Concerned seed certification officer will

be verified with the help of monitoring report, bill, label/tags etc.

3. Field inspection: Third step of seed certification is field inspection which is done to confirm the field standards such as land requirement, isolation distance, no. of off-type plants, diseased plants, objectionable plants, other crop plants, in case of hybrid seed production- pollen shedders and planting ratio. According to IMSCS, limit is fixed of these field standards. There are four stages of field inspection such as pre-flowering/vegetative stage, flowering stage, post flowering and pre-harvest stages and at the time of harvesting. In case of self pollinated crops, two field inspection, three field inspection in case of often and cross pollinated crops and four field inspections are required in hybrid seed production. During field inspection, following contaminations are observed:

- **Off-types:** The plants differing in morphological characters such as plant height, branching habit, flower colour, leaf or panicle shape and size, pigmentation, etc. are known as off types.
- **Pollen shedders:** The plants of B lines present in A lines are known as pollen shedder in hybrid seed production fields.
- **Inseparable other crop plants:** The plants of other crops present in seed

production field having similar size seed to the crop seed which are difficult to eradicate economically *i.e.* barley, oats, triticale and gram are inseparable other crop plants in wheat crop seed production field.

- **Objectionable weed plants:** The weed species having high multiplication ratio, similar seed size and shape or plant appearance similar to that of crop seed and if once mixed with seed crop, it becomes very difficult to eradicate it.
- **Diseased plants:** Some diseases like loose smut of wheat spread through seeds. Hence, diseased plants should be removed from seed production fields during roguing.

Total area under seed production mentioned in the application will also be confirmed along with the yield assessment. For confirmation of genetic purity, roguing (practice of removing the off-types, other crop plants, diseased plants etc.) is also confirmed. Seed certification officer will confirm the field standards by using field count.

Five field counts are taken up to the area of 2ha and one extra field count is taken for every additional 2 ha as shown in the table below:

Area of field	Number of field counts taken
Up to 2 ha	5
More than 2 and up to 4 ha	6
More than 4 ha and up to 6 ha	7
More than 6 ha and up to 8 ha	8
More than 8 ha and up to 10 ha	9

No. of plants taken per field count during field inspection	
Crop	No. of Plants/Heads per field count
Wheat, barley, oats, paddy, pearl-millet, sorghum and other tillering crops	1000
Pulse crops	500
Widely spaced crops like vegetables, cotton etc.	100

If the seed crop fails to meet any one of above field standards as per IMSCS, Seed certification officer will reject that seed field

or seed lot. Mixed or ratoon crops and heavily lodged crops (more than 1/3rd) are not eligible for seed certification. If field is rejected, there

is provision of re-inspection also but the producer will have to submit the application along with re-inspection fee within 7 days.

4. Post harvest inspection of seed crop: The post harvest supervision of a seed crop includes the operations carried out after harvesting the crop till the seed is completely processed. The seed certification officer will confirm the use of recommended sieve size in processing machines and proper cleaning of the machines to avoid mechanical mixture.

5. Seed Sampling and testing: Seed certification officer will take seed samples from the processed seed of all the seed lots offered for certification. The samples will be sent to the notified seed testing laboratory for confirmation of seed standards such as seed

germination percentage, physical purity, seed moisture content.

6. Grant of certificate, labeling and packing: After confirmation of seed standards and field standards, Seed Certification Agency will issue certificate along with tags (white for foundation seed and blue for certified class) which are valid for nine months. Certified seed should be tagged within two months from the date of test. Validity period can be further extended for next six months by seed certification agency if prescribed standards for germination, physical purity, and insect damage are maintained. It is advised to purchase always fresh seed as seed vigour is reduced with the passage of time.



Certified seed

Non-certified seed (TFL Seed)